



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/870,480	06/01/2001	Kouki Fukui	2001_0681A	1037

513 7590 12/29/2003

WENDEROTH, LIND & PONACK, L.L.P.
2033 K STREET N. W.
SUITE 800
WASHINGTON, DC 20006-1021

EXAMINER

AUGHENBAUGH, WALTER

ART UNIT	PAPER NUMBER
----------	--------------

1772

DATE MAILED: 12/29/2003

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,480

Applicant(s)

FUKUI, KOUKI

Examiner

Walter B Aughenbaugh

Art Unit

1772

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Acknowledgement of Applicant's Amendments

1. The amendment made in claim 30 in the Amendment filed October 20, 2003 (Paper 11) has been received and considered by Examiner.
2. New claims 43-47 presented in Paper 11 have been received and considered by Examiner.

WITHDRAWN OBJECTIONS

3. The objection to claim 30 made of record in paragraph 10 of Paper 10 has been withdrawn due to Applicant's amendment to claim 30 in Paper 11.

REPEATED REJECTIONS

4. The 35 U.S.C. 103 rejection of claims 15, 18-27 and 31-36 over Parrott et al. in view of Berdan, II and in further view of Clarke made of record in paragraph 11 of Paper 10 has been repeated for the reasons previously made of record in paragraph 11 of Paper 10.
5. The 35 U.S.C. 103 rejection of claims 16, 17 and 40 over Parrott et al. in view of Berdan, II and in further view of Clarke, and in further view of Yamaguchi et al. made of record in paragraph 12 of Paper 10 has been repeated for the reasons previously made of record in paragraph 12 of Paper 10.
6. The 35 U.S.C. 103 rejection of claims 28, 29, 30, 37, 38, 41 and 42 over Parrott et al. in view of Berdan, II and in further view of Clarke, and in further view of Hinden et al. made of record in paragraph 13 of Paper 10 has been repeated for the reasons previously made of record in paragraph 13 of Paper 10.

Art Unit: 1772

7. The 35 U.S.C. 103 rejection of claim 39 over Parrott et al. in view of Berdan, II and in further view of Clarke, and in further view of Hinden et al., and in further view of Yamaguchi et al. made of record in paragraph 14 of Paper 10 has been repeated for the reasons previously made of record in paragraph 14 of Paper 10.

NEW REJECTIONS

Claim Rejections - 35 USC § 112

8. Claims 43 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The structure intended to be recited by the phrase “disposed longitudinally between adjacent turns of said tubular duct”. Claims 43 and 46 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the relationship between “adjacent turns of said tubular duct” and the bonding agent; the phrase “disposed longitudinally” does not definitely recite this structural relationship.

Claim Rejections - 35 USC § 103

9. Claims 43 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parrott et al. in view of Berdan, II and in further view of Clarke.

Parrott et al., Berdan, II and Clarke teach the duct as discussed above. The bonding agent of the duct of Parrott et al., Berdan, II and Clarke is disposed longitudinally between adjacent turns of the duct as claimed in claims 43 and 46 because Parrott et al. teach that the panels of sheet material are secured together by a bonding agent (paragraph bridging pages 4 and 5) as

Art Unit: 1772

made of record in paragraph 11 of Paper 10 and therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed the sheet material taught by Parrott et al. and Berdan, II into an elongated strip of sufficient length so as to spirally wind the elongated strip into a tubular duct having a plurality of turns wherein the bonding agent is disposed longitudinally between adjacent turns of the plurality of turns of the tubular duct as taught by Parrott et al. Furthermore, the teaching of Clarke that a bonding agent adhesively secures side portions of adjacent turns together (col. 1, lines 54-58) as made of record in paragraph 11 of Paper 10 and the conclusion of paragraph 11 of Paper 10 applies to claims 43 and 47 since the bonding agent of Clarke is disposed between overlapping turns as Applicant points out on page 17 of Paper 11, the bonding agent is disposed longitudinally (longitudinally as in parallel to the longitudinal direction of the tubular duct).

10. Claims 44, 45 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Parrott et al. in view of Berdan, II and in further view of Clarke, and in further view of Schroeder.

Parrott et al., Berdan, II and Clarke teach the duct as discussed above. Parrott et al., Berdan, II and Clarke fail to teach that the noncombustible sheet (the sheet metal of Parrott et al.) is formed of a material selected from the group of materials recited in claims 44, 45 and 47. Schroeder, however, discloses a flexible section (item 16) of a duct that is a wrapped (i.e. wrapped in the form of a tube) aluminum foil sheet that is sufficiently stiff to preserve the tubular shape of the duct when bent (col. 2, lines 3-7 and 49-53). Since the aluminum foil is flexible, it is suitable for use as a sheet material that is to be spirally wound. Therefore, one of ordinary skill in the art would have recognized to have used the aluminum foil of Schroeder as

Art Unit: 1772

the sheet metal of the duct formed of a spirally wound multilayer sheet material of Parrott et al., Berdan, II and Clarke since aluminum foil is a notoriously well known sheet metal used as a component of duct walls that is flexible (therefore suitable for use as a sheet material that is to be spirally wound) but that is also sufficiently stiff to preserve the tubular shape of the duct as taught by Schroeder.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the aluminum foil of Schroeder as the sheet metal of the duct formed of a spirally wound multilayer sheet material of Parrott et al., Berdan, II and Clarke since aluminum foil is a notoriously well known sheet metal used as a component of duct walls that is flexible (therefore suitable for use as a sheet material that is to be spirally wound) but that is also sufficiently stiff to preserve the tubular shape of the duct as taught by Schroeder.

ANSWERS TO APPLICANT'S ARGUMENTS

11. Applicant's arguments in regard to the 35 U.S.C. 103 rejection of claims 15, 18-27 and 31-36 over Parrott et al. in view of Berdan, II and in further view of Clarke made of record in paragraph 11 of Paper 10 have been fully considered but are not persuasive.

On page 12 of Paper 11, Applicant argues that "the Parrott et al. teaching illustrated in Fig. 5 and described at the last five lines of page 8" "provides no suggestion whatsoever to dispose a noncombustible sheet continuously about a circumference of an insulating material so as to completely encase the insulating material when viewed in longitudinal cross section, as recited in each of the independent claims 15, 22 and 31". However, it is Examiner's position that the combination of Parrott et al., Berdan, II and Clarke teaches that which is claimed in claims 15, 22 and 31 as provided in paragraph 11 of Paper 10. Parrott et al. teach a sheet material

Art Unit: 1772

comprising a core of resin-bonded mineral wool that is adhesively bonded to a sheet metal on both sides of the wool core (page 2, lines 1-4), Berdan, II teaches a structure whereby a sheet is disposed continuously about a circumference of an insulating material so as to completely encase the insulating material when viewed in longitudinal cross section and Clarke teaches that it is notoriously well known to form a tubular ventilation duct formed of a spirally wound elongated strip of ventilation sheet material; the combination of these references teaches that which is claimed in claims 15, 22 and 31 as provided in paragraph 11 of Paper 10. The motivation for one of ordinary skill in the art to combine Parrott et al. and Berdan, II is that while Parrott et al. teach that a wool core is partially encased by the sheet material (item 9) as shown in Fig. 5, Berdan, II teaches complete encasement of a wool core in order to facilitate the ease of installing and handling of the wool core; the similar structures of wool partially or completely encased by a sheet material serve as a point of similarity between Parrott et al. and Berdan, II that motivates one of ordinary skill in the art to consult Berdan, II for improvements to the wool core of Parrott et al. Note that Berdan, II teaches complete encasement of a wool core in order to facilitate the ease of installing and handling of the wool core, and modification of the wool core of Parrott et al. as taught by Berdan, II (complete encasement of a wool core) does not destroy the functionality of the wool core as taught by Parrott et al. but only serves to facilitate the ease of installing and handling of the wool core.

On page 13 of Paper 11, Applicant argues that "A person having ordinary skill in the art would clearly not have been motivated to use such flexible exterior layer to fully encapsulate the solid (non-flexible) mineral wool sheets 7 of the Parrott reference", but the Office Action (Paper 10) does not propose using the "flexible exterior layer", in Applicant's words, of Berdan, II to

Art Unit: 1772

“fully encapsulate” the wool core of Parrott et al. The Office Action proposes modifying the noncombustible sheet of Parrott et al. so as to completely encase the wool core.

Applicant alleges that “as shown by the non-clad center section of the mineral wool sheets 7 in Fig. 5 of Parrott, the cladding 9 is not essential for the structural stability of the insulating assembly in Parrott, quite contrary to Berdan” on page 13 of Paper 11. Applicant’s statement that “the cladding 9 is not essential for the structural stability of the insulating assembly in Parrott” is speculative, as is the contention that the wool of Berdan, II is “essential for the structural stability of the insulating assembly”. These statements are not supported in the teachings of either references. The “cladding 9” of Parrott et al. is necessarily “essential for the structural stability of the insulating assembly in Parrott” because the cladding is a component of the “structural assembly” as shown in the figures and as discussed in the text. How can the insulating material of Berdan, II possibly be “essential for the structural stability of the insulating assembly” if, as Applicant states on page 13 of Paper 11, the insulating material is “very flexible and conformable”? Applicant’s allegation that the “wool sheets 7 of Parrott” are “relatively rigid” is unsupported for the reason discussed above. The teaching of Berdan, II motivates one of ordinary skill in the art to have completely encased the wool core of Parrott et al. because Berdan, II teaches complete encasement of a wool core in order to facilitate the ease of installing and handling of the wool core as stated above in this Office Action (Paper 12) and in paragraph 11 of Paper 10.

On page 14 of Paper 11, Applicant argues that the “process of Clarke is clearly not adapted for manufacturing a tube from the mineral wool sheets 7 of Parrott et al. clad with sheet metal 9”, but in examining article claims, the Office is concerned only with the structure of the

Art Unit: 1772

finished article taught in references; the method of forming the duct is not germane to the issue of patentability of the duct itself. The duct taught by Clarke is a reinforced flexible tubing and, more specifically, a spirally wound tape having a continuous reinforcement (col. 1, lines 22-27). The statement by Applicant "the Parrott et al. sheets are relatively rigid sheets, as evidenced by their structural form in Figs. 1-5 of Parrott et al." is completely unfounded; nothing shown in Fig. 1-5 proves that the sheets of Parrott et al. are limited to only "rigid" sheets, and the phrase "relatively" used by Applicant has not been defined by Applicant. The allegations that the sheets "would not adapt to the necessary flexing [in the process of Clarke]" and that the alleged "bulky nature of the completely encased mineral wool sheets of Parrott et al." "would not adapt to the requirement of the Clarke process" are irrelevant because the method of forming the duct is not germane to the issue of patentability of the duct itself. There is nothing in the disclosure of Parrott et al. that limits the sheet metal taught by Parrott et al. (page 2, line 4, page 5, lines 4 and 10 and claim 1. Flexible sheet material as the sheet metal falls within the scope of the teachings of Parrott et al. and within the scope of claim 1 of Parrott et al.

Furthermore, in response to Applicant's piecemeal analysis of the references that has been addressed in the entirety of the text provided above under the *ANSWERS TO APPLICANT'S ARGUMENTS* heading in this Office Action (Paper 12), it has been held that one cannot show non-obviousness by attacking references individually where, as here, the rejections are based on combinations of references. *In re Keller*, 208 USPQ 871 (CCPA 1981).

In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so

Art Unit: 1772

long as it takes into account only knowledge which was within the level of ordinary skill in the art at the time the invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. *In re McLaughlin*, 443 F.2d 1392; 170 USPQ 209 (CCPA 1971). The combination of references is appropriate as discussed above.\

On page 15 of Paper 11, Applicant argues that "It is not seen, nor does any reference suggest, how this type of simple lateral bridge-type joint [in reference to the jointing strip, item 17 of Parrott et al. that paragraph 11 of Paper 10 identifies as the "noncombustible joint member"] could be adapted to be provided between each adjacent pair of turns of a spirally-coiled tube". It is Examiner's position that since Parrott et al. teach the noncombustible joint member (item 17) connects panels together, the noncombustible joint member would serve the equivalent function via the equivalent structure (i.e. one strip of the multilayer sheet material fastened to another strip of the multilayer sheet material) as taught by Parrott et al. in the spirally wound duct taught by Parrott et al., Berdan, II and Clarke; therefore, the proposed modification where each pair of adjacent turns of the plurality of turns are secured together by the noncombustible joint member made of record in paragraph 11 of Paper 10 is appropriate. Securing together a series of panels where each pair of adjacent panels is secured together by the noncombustible joint member is structurally and functionally equivalent to securing together each pair of adjacent turns of the plurality of turns in the spirally wound duct taught by Parrott et al., Berdan, II and Clarke. Applicant's argument that "the adaptation of the formation of such a joint into the process of forming the tubing taught by Clarke would not be readily discernible to a person of ordinary skill in the art" is irrelevant because the method of forming the duct is not germane to the issue of patentability of the duct itself.

Art Unit: 1772

12. Applicant's arguments in regard to the 35 U.S.C. 103 rejection of claims 28, 29, 30, 37, 38, 41 and 42 over Parrott et al. in view of Berdan, II and in further view of Clarke, and in further view of Hinden et al. made of record in paragraph 13 of Paper 10 have been fully considered but are not persuasive. Applicant argues that Hinden et al. disclose "the use of two separate joint members that each have a bent-over marginal edge 16 that clamps one of the opposing edges of a flexible insulating connector" and that consequently that Hinden doesn't disclose the structural limitations that are claimed in claims 28 and 37, but the Office Action establishes the structure taught by Hinden et al. that Examiner considers to correspond to noncombustible joint member as claimed in claims 28 and 37:

The combination of the flexible connector material and the bent marginal edges (item 16, Fig. 3 and 4) corresponds to the noncombustible joint member as claimed in the instant application. The bent marginal edges of Hinden et al. are opposing side edges of the noncombustible joint member as claimed in the instant application that are folded over the strips of Hinden et al. (items 13 and 14), which correspond to the axially extending portions of the flanges as claimed in the instant application.

Applicant argues that "Hinden clearly does not suggest how such joint member could be incorporated into a tubular duct wherein it acts as a joint between adjacent turns of the spiral material", but it is Examiner's position that since Parrott et al. teach the noncombustible joint member (item 17) connects panels together, the noncombustible joint member would serve the equivalent function via the equivalent structure (i.e. one strip of the multilayer sheet material fastened to another strip of the multilayer sheet material) as taught by Parrott et al. in the spirally wound duct taught by Parrott et al., Berdan, II and Clarke and that the connector of Hinden et al. performs the equivalent function of the joint member of Parrott et al.; therefore, the proposed modification where each pair of adjacent turns of the plurality of turns are secured together by the connector of Hinden et al. made of record in paragraphs 11 and 13 of Paper 10 is appropriate.

Art Unit: 1772

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

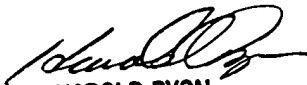
14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Walter B. Aughenbaugh whose telephone number is 703-305-4511. The examiner can normally be reached on Monday-Thursday from 9:00am to 6:00pm and on alternate Fridays from 9:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon, can be reached on 703-308-4251. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

wba
12/18/03

WBA


HAROLD PYON
SUPERVISORY PATENT EXAMINER
1/12

12/22/03